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**U.S. Naval Support Activity Bahrain**  
2021 Secretary of the Navy Environmental Award  
“Environmental Quality – Overseas Installation”  
**Narrative**

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**Introduction:** The continued importance of the Middle East to the United States has resulted in a steady increase in the U.S. Navy's presence in the region. In addition to a significant increase in its deployed forces, the Navy's shore presence in the Arabian Gulf has grown appreciably throughout the years since Operation Desert Storm. The formal responsibility for managing the environmental programs at these shore facilities rests with U.S. Naval Support Activity (NSA), Bahrain.

NSA Bahrain is the only permanent frontline shore Navy base in the Middle East providing operational support to U.S. and Coalition Forces operating throughout the U.S Central Command (CENTCOM) Area of Responsibility (AOR). It serves as a major logistic node for ships deployed to the U.S. Fifth Fleet. NSA Bahrain not only provides logistical, medical, security, administrative, and recreational support in the most dynamic theater in the world, it also maintains the highest standard of excellence and accomplishments, despite severe manpower and financial constraints. With a total space deficit of 38% and continual mission additions, NSA Bahrain has no excess infrastructure to spare on its 268 acres (NSA I, NSA II and NSA III) that serve a community of over 8,500 personnel. NSA Bahrain's Environmental Department (ENV) works closely with stakeholders to meet mission and space requirements while emphasizing customer service, community relations, overseas drinking water program management, waste reduction efforts, environmental training and awareness, continuous improvement, smart business, and building international relationships.

**Background:**

ENV continues to provide exceptional oversight of the environmental program at Naval Support Activity, Bahrain (including the Aviation Unit), Isa Air Base, Ports of Jebel Ali and Fujairah in the United Arab Emirates (UAE) and Port of Duqm in Sultanate of Oman. Leveraging our Environmental Management System (EMS), we provide timely, quality service that enables and sustains Fleet, Fighter, and Family readiness through consistent standardized shore services within the Commander, Fifth Fleet (C5F) AOR. ENV is successfully targeting waste minimization and improving military readiness in a high tempo operational environment. Our team leads NSA Bahrain, COMFIFTHFLT, and over 147 Tenant Command stakeholders in adopting environmental management techniques that promote the protection of the environment and Host Nation relations all while sustaining mission objectives. Additionally, the team continues to support the COMFIFTHFLT environmental functions delegated to Commander, Navy Region, Europe Africa, Central (CNREURAFCENT) including the Navy On-Scene Coordinator (NOSC) and Regional Environmental Coordinator (REC) responsibilities while maintaining the highest standards and meeting all defined goals.

**Summary of Accomplishments:**

**Customer Service:** NSA Bahrain continues to excel in customer service by initiating new programs and improving existing ones to enhance the Quality of Life for its personnel, C5F, and the surrounding communities. We strive to service our customers with a “can do” attitude and create a climate of operational excellence. ENV is a well-respected group and is known for its collaborative focus, experience, and expertise serving the Fleet.

- ✓ During the past two years, ENV responded to more than 600 service calls from the fleet supporting 110 U.S. Navy and Coalition ships while processing over 11,700 drums of shipboard used hazardous material offloaded in Bahrain and UAE.
- ✓ ENV completed Environmental Condition of Property (ECP) surveys for potential leases at Port of Duqm in Sultanate of Oman, saving approximately \$100K in contractor costs.

### Community Relations:

- ✓ ENV manages a robust and highly successful Qualified Recycling Program (QRP). Our program is designed for maximum efficiency with proceeds supporting NSA Bahrain pollution prevention, energy initiatives, and quality of life projects. Our contractor-operated, ENV managed program shifts the burden of collection, segregation, transportation, and sales of recyclable material to Kingdom of Bahrain's Supreme Council of Environment (SCE) approved vendors. The QRP receives a negotiated price per ton per commodity. This strategy allows the program to be managed by one FTE while producing proceeds of \$80K-\$100K annually.
- ✓ QRP proceeds were sourced to fund several projects to improve quality of life on base including Earth Week activities, landscaping projects, traffic improvement project - bike lines, bike racks, color coded recycling receptacles. Most recently, QRP funds were used to purchase 10 new water fountains with refillable water bottle feature for DoDDS.
- ✓ ENV launched an aggressive environmental awareness campaign targeting education and guidance to our families and incoming troops. We've published articles on EMS awareness, storm water pollution prevention, and recycling in the base's weekly publication, "The Desert Times", and we have appeared with the base Commander on his biweekly AFN radio show, "Desert Times Live," discussing environmental initiatives.
- ✓ Each year, hundreds of U.S., Coalition Forces, HN, and DoDDS children participate in a week-long Earth Week celebration that included various activities aimed at increasing awareness and making pledges to protect the environment. Earth Week emphasized that every day is Earth Day – a time to act and to protect our planet.
  - Each day, ENV published articles that provided information about Earth Day and its history. Additionally, a booth was set up and manned by ENV who provided daily passersby with information on reducing the use of bottled water.
  - A blind taste test was conducted which proved water produced on NSA was preferred over bottled water.
  - Opened a recycling drop off point for base population to drop their household recyclables
  - A base wide cleanup has become tradition on the last day of Earth week. In FY19, volunteers collected in excess of 16,680 lbs of debris. Only 1,000 lbs (7%) were disposed at the Asker Landfill in Bahrain. The remaining 15,680 lbs of scrap metal, plastic, aluminum cans, paper, cardboard were sent to the recycling facility.
  - New additions to our Earth Day events included a planting class for all age kids at the DoDDS.



- Earth Week was also our continuing effort at “greening” NSA II. Led by NSA Command staff, ENV organized 40 volunteers (including the Girls Scouts) to help plant flowers and trees next to the new Bachelor’s Enlisted Quarters (BEQ) which will improve the sailor’s quality of life for years to come. The activity was entirely funded using proceeds from the Qualified Recycling Program (QRP).



#### Overseas Drinking Water Program Management- Protecting our Families and Troops:

ENV meticulously manages the drinking water monitoring program for NSA I / II, and satellite locations including NSA III (AV Unit), DoDDS, Isa AB, and the Ports of Jebel Ali and Fujairah (UAE) ensuring personal health and safety and compliance with the FGS. We go above and beyond as documented by:

- ✓ The Installation Environmental Program Director and the RO Plant operator conduct a certification program for the local national water plant employees and the ENV water program manager through the Association of Boards of Certification (ABC) for water treatment and distribution. The program ensures competency and professionalism among employees and enhances the quality of work performed for the Navy. Additionally, this program transfers easily to other ODW facilities.
- ✓ ENV implemented a new management strategy for drinking water systems found at the Cooperative Security Locations (Jebel Ali and Fujairah). Although those sites are not part of the ODW Program, there are several restaurant and food preparation vendors that service the ships. The restaurants rely on city water stored in above ground tanks that were not routinely sampled, and rarely flushed or disinfected. ENV developed a Standard Operating Procedure (SOP) and worked with the United Service Organizations (USO) Memorandum Of Agreement (MOA) to ensure all water storage tanks are emptied when not in continuous use and are flushed with clean water containing a minimum of 1 mg/l of free available chlorine at the point of delivery prior to resuming use.
- ✓ ENV provided the annual Consumer Confidence Report (CCR) to drinking water consumers at Satellite Locations and NSA Bahrain in both English and Arabic (translated in house by our water Program Manager) languages for increased transparency and comprehension.
- ✓ No violations of drinking water standards. More than 600 locations are being sampled for various parameters to ensure drinking water distributed meets Navy standards. In addition, in FY19 more than 380 water samples were tested for lead (Pb) in priority areas (LIPA) such as DODDS, CDC and Youth center in accordance with OPNAV Instruction 5090 series. Significant progress in program management was attributed to the Installation Water Management Board alertness in assuring drinking water compliance in coordination with PWD and BOSC.
- ✓ ENV completed the required PFAS sampling and will begin cryptosporidium sampling in January 2021.

#### Waste Reduction Efforts:

- ✓ ENV painstakingly segregates all waste offloaded from ships to ensure maximum diversion. Our efforts have paid off by reducing disposal quantities by 61% by recycling used oil, cans, batteries, and other waste that otherwise would have been disposed.
- ✓ Partnering with the DLA Distribution, continues its turn-in program where 90,000 Lbs of expired lead acid batteries and more than 152,000 Lbs of expired POL recycled that generated \$21K as QRP proceeds in addition to a total cost avoidance of \$106K compared to DLA disposal cost and avoided the



potential risk of both temporary storage and transboundary shipment when opting DLA disposal method.

- ✓ Base wide notification in free issuing over 100 toner cartridges helped to find many other commands to re-use them. These were turned in for disposal/recycling following the replacement of printers. This diversion has resulted in a cost savings of more than \$20K as purchase value.
- ✓ To more accurately manage our EMS solid waste reduction efforts, ENV operates truck weighing scales to obtain the accurate weight of the recycling materials as well as solid waste leaving the base.

#### Environmental Compliance Assessment and Management Program- Training and Awareness:

Our team has embraced the environmental challenges of managing multiple installations and contingency locations in multiple countries by leveraging a high-performing workforce and establishing strict SOP's for sustainable solutions. Because of the high personnel turnover rate in the AOR, we implemented high velocity shop level HAZCOM learning for arriving Units. ENV has developed straight-forward policy, Instructions, and best management practices that are consistent with the Host Nation intent and Navy policy already in place throughout the AOR.

- ✓ We are constantly improving and fine tuning our skills. The Environmental Quality Assessment (EQA) has three tiers, including an annual self-audit conducted by the activity, external audit sponsored by the major claimant (usually every three years), and the audit conducted by the Inspector General (IG). ENV had all three inspections in 2019/2020 plus ARCENT conducted the environmental assessment per CENTCOM 200-2 requirement. NSA Bahrain declared full conformance with EMS ISO 14001 standard.
- ✓ In sync with the high turnover rate for this AOR, ENV provided Hazardous Waste Operation and Emergency Response (HAZWOPER), Pollution Prevention (P2), Spill Prevention, and EMS training to over 400 personnel at NSA Bahrain, UAE, and Isa AB, providing the skills and knowledge necessary to safely handle hazardous waste, respond to spills, and conduct P2 assessments using in-house capabilities.
- ✓ Provided face-to-face Environmental Management System (EMS) compliance briefings to: 1) shop level Environmental Coordinators prior to assuming their duties, 2) contractor's representatives upon awarding the contract, and 3) hazmat personnel onboard visiting vessels. In addition, over 400 new personnel at NSA Bahrain received EMS awareness training during their command indoctrination.
- ✓ Developed a new environmental Base Instruction for contractors and home-port ships that store/handle hazardous materials on the pier. This new Instruction establishes policy governing the use of staging areas within the NSA Bahrain security enclave at the operating pier area, and is expected to reduce the risk of spills into Host Nation water sources.
- ✓ ENV implemented a new onboard "Fleet Training Program". EV provides Oil and Hazardous Substance (OHS) spill response training, guidance, and other applicable information to units making port calls to NSA Bahrain including home-ported and visiting ships as well as all waterfront tenants. All hands training is implemented onboard when feasible to or via Port Ops in brief (visiting ships) to ensure staff are aware of their role/responsibility, notification procedures and available resources in the event of an inadvertent release of OHS.
- ✓ In this AOR, Jebel Ali and Bahrain are the only authorized shipboard HAZMAT offload locations. To enhance communication and ensure spill preparedness, we continually update the Shipboard HAZMAT offload procedures to reflect current policies. All ships receive a copy upon entering the AOR which ensure waste is properly profiled, labeled, and manifested.



#### Environmental Management System (EMS) – Continuous Improvement:

A dedicated and highly disciplined staff provides a superior level of service to customers for the activities and facilities supported by the NSA Bahrain Environmental Program. ENV is focused on the Unit/Tenant Environmental Coordinators who are the lynch-pins for daily awareness and control the environmental risk within each shop. ENV offers EMS Awareness and HAZWOPER training every six months at both NSA Bahrain/ISA AB and UAE sites to keep up with turnover and ensure an efficient and effective program.

Conforming to the ISO 14001 Standard has been an essential tool in managing our environmental programs. Increased awareness training and communication among installation tenants and contractor personnel has resulted in:

- ✓ In FY20 a 30% reduction in the number and severity of oil and hazardous substance releases to the environment from FY19. No major spills (>110 gals) in FY19/20.
- ✓ 58% increase in annual recycling revenues since FY18/19.
- ✓ Coordinated with REGCOM, COMUSNAVCENT and DLA Disposition Services in permitting a host nation approved facility for waste disposal. Transition to a NAVCENT-approved local incinerator helped to overcome non-compliance storage, and avoid potential releases resulting from delays with the Basel international transportation agreement.
- ✓ A more comprehensive approach to identifying and documenting environmental priorities, enabling improved funding justifications and communications to Senior Leadership.

#### Smart Business:

ENV delivers timely, essential support to customers through disciplined execution of manpower and resources. Our endeavor for efficiency and cost savings led to \$2.3 Million in disposal cost avoidance and \$537,088 in QRP revenue.

- ✓ Our robust QRP helped divert over 2,277 tons of aluminum cans, scrap metals, wood, plastic bottles, paper, cardboard, and others from the solid waste stream, achieving a disposal cost avoidance of over \$232,745 while generating over \$537,088 of sale proceeds supporting the base's Quality of Life programs.
- ✓ Recently, our QRP was able to accept and recycle 141 scrap Relocatable Buildings (RLBs). Working closely with PWD, the base contractors, and our QRP vendors, ENV was able to coordinate the transportation and storage in a phased approach netting \$205K in proceeds.
- ✓ In FY20 NSA Bahrain has taken the recycling program to the next level by establishing an expended brass (Material Documented as Safe -MDAS) deformation /recycling program in cooperation with NSA Bahrain explosive safety office (ESO). ENV identified a local ESO-approved vendor that subtracts the cost of deformation from the total sales cost. To date, NSA Bahrain has recycled over 18 tons of brass with net proceeds of \$18,000 and saved thousands of dollars in shipping costs to DLA's overseas DEMIL in Kuwait.
- ✓ Working with contractors to segregate and collect C&D waste, our program has doubled the volume of scrap metal sales. In FY19/20, recycled 588.62 Tons with a revenue of \$205K, avoiding the landfill cost of \$68K.
- ✓ With the high demand for water in the AOR, ENV worked with PWD and the drinking water plants to collect, store and use reverse osmosis (RO) reject water for irrigation. NSA Bahrain used over 26 million gallons of reject water for irrigation saving over \$108,000 in raw water costs and taking another step toward sustainability.
- ✓ Supporting the fleet and local tenants, we recycled over 2,400 drums of used oil reducing hazardous waste disposal quantity by 1.0 million pounds and hazardous waste disposal costs by almost \$774,877.62.
- ✓ Developed and implemented site-specific SOPs which include turn-in Guide for Expended Small Arm Casings (receiving and storing expended brass), Hazmat storage on the pier, and an Environmental

compliance guide for shore activities used as a training tool for fleet on basic Environmental requirements, spill response and reporting procedures while in port.

- ✓ Approximately 35-45% of the fleet waste is oily rags. To reduce the volume of drums stored on site, ENV negotiated with DLA to use Tri-Wall storage containers. The use of Tri-Wall containers saves at least 6 drums per container, which are then returned to our free issue drum program reducing the cost of new drums to the fleet and saving storage space in the hazardous waste storage area. Initiating the use of Tri-Wall containers for oily rags and expired Hazmats, we've added over 1,400 drums to the free issue drum program saving the fleet over \$98K in FY19/20 for the cost of new drums.
- ✓ Developed a point paper for the Management of Disposable Non-Trichloroethylene (TCE) Contaminated Wipes IAW USEPA exemption for disposable non-TCE solvent contaminated wipes. This allows NSA Bahrain to incinerate oily rags (non-regulated waste) locally. Since inception in mid-FY20 we've saved the Fleet \$228K incinerating 186K pounds of oily rags compared to DLA disposal cost.
- ✓ In FY19/20, a total of 77% of waste diverted for recycling/reuse from construction & Demolition (C & D) projects which was well beyond our EMS goal of 45% and recently adopted DOD waste management hierarchy of diverting 60% of C & D debris from landfilling. From a total of 760.62 tons generated, 588.62 tons were diverted. Recycling/Reuse of building debris provided an excellent, environmentally-preferred alternative and saves precious landfill space in on the small island of Bahrain.
- ✓ Engaged in the review and approval process of more than 600 chemicals authorizing it's use and included in command's Authorized User's List (AUL) using NAVSUP HAZMIN CENTER HMC&M TOOL
- ✓ Flexibility to adapt modern technology helped Environmental team to overcome COVID related constraints which include virtual HAZWOPER training to shop level Hazmat/Hazwaste handlers, developing Port of Duqm ECP remotely in coordination with landlord and regulatory agencies, and provided 10 COVID-friendly refillable water stations, all while implementing distributed work force at the office.
- ✓ With COVID travel restrictions we established Environmental Services on the UAE BOSC to help managing the ever growing environmental program in United Arab Emirates (DET UAE) CSL sites to ensure continuity of the program during frequent turn-over of detachments.
- ✓ Established communication at different level in authorizing additional shipboard Hazmat waste offload locations in C5F AOR. EV requirements and POAs were outlined for further discussions.

Tables 1 and 2 show the cost savings and waste diversion rates per category for NSA Bahrain from FY19 & FY20. The cost savings were calculated comparing the landfill tipping fee and Defense Logistics Agency (DLA) disposition cost respectively. We expect our numbers to increase as we learn more about alternatives to waste disposal and become more familiar with the services provided and needed in the community.

#### **TABLE (1) SOLID WASTE RECYCLING PROGRAM**

CATEGORY	(TONS)	CATEGORY	(TONS)
Mixed Paper	99.67	Mixed Plastic	140.48
Cardboard	925.15	Cooking Oil/ Grease	51.10
Scrap Metal	1017.37	PET Bottles	26.50
Aluminum Cans	11.53		
Textiles	5.90		
		<b>TOTAL</b>	<b>2,277.70</b>
		<b>Cost Avoidance (\$)</b>	<b>\$232,745.88</b>

**TABLE (2) RECYCLING / REUSE PROGRAM**

CATEGORY	(TONS)	COST VOIDANCE (\$)
Used Oil	423.15	\$774,877.62
Fluorescent Bulbs	19.02	\$86,740.00
Aerosol Cans	4.45	\$20,825.00
Batteries	200.82	\$548,547.60
Empty Oil Cans	23.59	\$98,595.38
Toner Cartridges	10.18	\$46,287.00
Used HW Drums	130.39	\$456,365.00
In-country HW Management	--	\$240,826.00
<b>TOTAL</b>	<b>811.60</b>	<b>\$2,273,063.60</b>

#### Building

#### International Relationships:

NSA Bahrain ENV focuses on relationships, both on and off base. Frequent interaction with our community reinforces our commitment to the Navy's guiding principles.

- ✓ Marine Emergency Mutual Aid Center (MEMAC). Our recent Oil Spill Response Workshop in Bahrain last year was a huge success. In conjunction with SUPSALV, representatives from the U.S. Navy, SCE, MEMAC, Maritime Safety and Environmental Protection, Port Maritime Authority, Bahraini Coast Guard, Saudi ARAMCO, Ministry of Environment, and Bahrain Petroleum Company participated in the workshop exploring the Incident Command Structure to unify spill contingency and establish an effective spill response program for NSA Bahrain.
- ✓ In January 2020, NSA Bahrain ENV facilitated negotiations between the Office of Foreign Affairs (OFAC), MEMAC, and NAVCENT to address concerns associated with the risk posed by deteriorating Iranian Oil pipelines. OFAC ultimately issued a waiver to sanctions allowing MEMAC to recover the oil and avoid a potential catastrophic oil spill in the Gulf.
- ✓ Spill response is a community effort. To support readiness of the Fleet, ENV conducted oil spill equipment deployment exercises at Bahrain/Isa and UAE. ENV has engaged the Host Nation and industry in all exercises to form a coalition in case of an incident and to ensure our emergency plans synchronize with stakeholders.
- ✓ Leveraging our good working relationship with Host Nation regulatory authorities including the Kingdom of Bahrain Supreme Council for Environment, Port and Maritime Affairs



and Ministry of Agriculture, ENV was able to expedite the regulatory approval of Waterside Limited Obstacle System at Mina Salman Port. .

- ✓ Coordinated with Supreme Council for Environment to safely dispose of approximately 35,800 lbs. of non-hazardous waste either via local incinerator or landfill. Local disposition helped in cost avoidance of \$45K compared to DLA disposal cost and avoided the risk of transboundary shipment.
- ✓ Constantly improving our relationship with the host nation, ENV partnered with Imdaad LLC (Subsidiary of Dubai Port World) to enhance recycling efforts in the Dubai Port, UAE. With no permanent environmental staff onsite to manage the waste streams, ENV works closely with Imdaad LLC to collect, segregate, and transport material that would otherwise require disposal. In FY19/20 this partnership diverted over 25 tons of material from host nation landfills avoiding costly landfill disposal fees.

**Conclusion:**

This has been a highly dynamic, challenging, and productive period. The base infrastructure, base support, quality of life services and facilities were expanded and improved significantly. ENV continues to provide exceptional oversight of the environmental program at Naval Support Activity, Bahrain, Isa AB, Ports of Jebel Ali and Fujairah in the United Arab Emirates and Oman.

During this time we have diverted approximately 2,277 tons of materials from landfill and waste streams for reuse and recycling. Our efforts have saved approximately \$232,745 and generated \$537,088 in proceeds that helped strengthen our program and quality of life. As our program grows, our savings and revenues will increase and the funds reinvested into the installation will continue to enrich the lives, community, and environment at NSA Bahrain.